

between the dark and light portions. Such a line of demarcation makes its appearance when the body has grown to about 0·3 millim. in length; the paler and darker portions then appear very like a small acorn in its cup. Subsequently the pale portion becomes elongated, and grows into the caudal part of our structure; whilst the darker head portion gradually acquires a conical form, and the foremost membranous part commences its motory activity; but the tail, contrary to what occurs at a later period, is still distinguished from the head by its much lighter appearance, and, instead of seminal filaments, its surface is covered with small, roundish, transparent granules (vesicles?), thus reminding one of the globular or elongated bodies on which the seminal filaments are developed, for example, in the body-cavity of the Annelida.

XLIX.—Descriptions of new Genera and Species of Phytophaga.

By J. S. BALLY.

Fam. Sagridæ.

Sagra mutabilis.

S. supra subopaca, subtus nitida; antennis extrorsum nigro-purpureis; thorace subquadrato, antice vix producto, angulis anticis modice prominulis; clytris basi thorace multo latioribus, humeris subprominulis, a basi ad apicem angustatis, supra convexis, intra humeros sat profunde impressis, subtiliter coriaceis, infra basin minus profunde transversim impressis, tenuissime gemellato-punctato-striatis, striis fere omnino deletis.

A. Corpus rufo-iguceum. C. Corpus viridi-cæruleum.

B. Corpus viridi-aureum. D. Corpus purpureum.

Mas. Femoribus posticis sat elongato-incrassatis, elytra sat superantibus, subtus bidentatis, dente antico majore; tibiis ejusdem paris apice mucronatis bidentatisque, dente exteriori valido, abdominis segmento primo deplanato, crebre punctato, tomentosum.

Fem. Elytris oblongis, postice minus angustatis; femoribus posticis elytra vix superantibus, subtus ante apicem crista brevi instructis; tibiis ejusdem paris apice breviter mucronatis.

Long. 8–11 lin.

Hab. Cambodia, Siam.

This lovely species is most closely allied to *S. speciosa*, Lac.: it agrees so completely in nearly all its characters with that insect that a detailed description would be almost useless. I shall therefore confine myself to the points of difference between the two insects.

In *S. mutabilis* ♂ the antennæ are equally long, but stouter; the thorax is usually (but not always) slightly broader; the elytra are much broader at their base, the humeral callus being

more prominent, and causing the base of the elytra to appear more abruptly truncate; they are shorter in proportion to their basal breadth, and at the same time more quickly narrowed from base to apex, thus being less parallel and more regularly wedge-shaped; they are less deeply depressed transversely below the basilar space, their surface is more finely punctured and opaque; the hinder thighs are shorter, thicker, and less attenuated towards their apex; viewed laterally, they are suddenly thickened at their base, and then gradually increase in width to beyond their middle. In *S. speciosa* they increase more gradually at first, but remain for some distance in the middle at nearly the same width; viewed from above, the outer edge in *S. mutabilis* is more regularly curved, the thickest portion of the femur being about or just beyond the middle; in *S. speciosa*, on the other hand, the thigh is more attenuated from its middle to its apex, the thickest part being rather before than at the middle itself. In the female the elytra are oblong-ovate, and not narrowed from base to apex as in the male; but I do not know any characters by which the ♀ can be separated with certainty from the same sex of *S. speciosa*, *S. Druryi*, and other allied species.

Sagra Livingstonii.

S. elongata, obscure cæruleo-nigra, supra subopaca, subtus nitida; thorace latitudine vix longiore, angulis anticis paullo prominulis, disco lævi, basi unifoventato; elytris intra humeros leviter impressis, tenuiter sulcato-striatis, sulcis distincte punctatis, ante apicem deletis, sulcis 5^{to} 6^{to}, 7^{mo} 8^{vo}, et 9^{no} 10^{mo} pone medium nonnihil per paria approximatis; tibiis intermediis subtus ultra medium dente obtuso armatis. ♀

Long. 8 lin.

Hab. Zambesi River.

This species is nearly allied to *S. Urania* and *S. seraphica*; the very obtuse tooth or spine on the under surface of its intermediate tibiæ will without trouble serve to distinguish it from both those insects: by means of the above-mentioned characters it enters into that section of the genus which contains *S. tristis* and *S. Murrayi*; but the punctation of the elytra and the non-prolongation backwards of the prosternum show without doubt that it belongs to quite another section.

Head finely punctured; antennæ rather longer than half the body, robust, slightly increasing in thickness towards their apex, third and fourth joints ovate, nearly equal. Elytra subparallel, slightly narrowed towards the apex, the latter narrowly obtuse; above moderately convex, very slightly flattened along the suture, not depressed below the basilar space; each elytron with ten sulcate striæ, the first short; these striæ, which are nearly equi-

distant at their base, somewhat approximate in pairs on the hinder and outer portions of the disk, and are each impressed by a single row of distinct punctures; deeply impressed in front, they become shallower and their puncturing less distinct below the middle, and towards the apex of the elytron are quite obsolete; the 9th and 10th rows are placed at a greater distance from the adjoining striæ than any of the other pairs; within the outer border is a deep impunctate sulcation, which extends the whole length of the margin. Hinder thighs not extending beyond the elytra, their under surface furnished near the apex with a short ridge, either extremity of which is armed with a short tooth; hinder tibiæ with the basal half curved, the apical half nearly straight, the apex not mucronate; on their inner surface at the base is an obtuse tubercle.

Fam. Megalopidæ.

Temnaspis Mouhoti.

T. elongata, parallela, fulva, nitida, pube suberecta vestita; antennis, mandibularum apice, plaga transversa inter oculos, plaga verticali, thoracis maculis duabus disco transversim positis, clytrorum maculis sex, tibiæ apice tarsisque nigris.

Var. A. Elytrorum maculis nigris obsolete.

Long. 4 lin.

Hab. Cambodia. Collected by the late M. Mouhot.

Head punctured, a flattened triangular space on the forehead, impressed on the centre of its basal margin with a deep fovea; epistome smooth, impunctate, impressed with a deep longitudinal groove; antennæ as long as the head and thorax, black; the black patch on the face is transverse, and often extends quite across between the eyes; the latter prominent, their inner margins narrowly and obliquely notched. Thorax rather broader than long, sides obtusely angled at their middle, deeply constricted just behind their apex; above subcylindrical, transversely grooved near the base and again in front, the anterior sulcation running into the lateral constriction; surface shining, subremotely punctured. Scutellum triangular, its apex notched. Elytra parallel, dehiscant at their apex, subelongate, upper surface rather more closely punctured than the thorax, longitudinally depressed along the suture, impressed at the base within the shoulders; basilar space obsolete raised; on each elytron are three large black spots—one, oblong, at the base, extending over the humeral callus, a second, transverse, placed just before the middle, arising just within the lateral border and extending across nearly to the suture, and a third, subapical, triangular, its anterior border notched. Hinder thighs in the ♂ strongly incrassate, armed beneath near the apex with a stout tooth; in

the ♀ moderately thickened, unarmed. The whole surface of the body covered with coarse, suberect, fulvous hairs, mingled here and there with black.

Pæcilomorpha Thoreyi.

P. elongata, postice attenuata, pallide rufo-fusca, pilis depressis dense vestita; antennis, thorace (hoc limbo prætermisso) femoribusque anticis dorso piceis: clytris sordide flavis, postice et ad latera fuscis, marginibus lateralibus piceis; linea suturali vix ante medium fere ad apicem extensa, medio dilatata, flavo-albo pilosa.

Long. $5\frac{1}{2}$ lin.

Hab. Old Calabar.

Head broad, closely punctured; eyes large, prominent; epistome rather broader than long, separated from the face by a deep transverse groove, its surface smooth and shining, impressed on either side below the upper angles with coarse punctures; it is also clothed on either side on the same spot with a patch of adpressed hairs; face plane, closely covered with distinct punctures; on its lower edge, at the middle, is a short raised smooth line. Antennæ not equal in length to the head and thorax, piceous, their basal joints obscure rufo-fulvous. Thorax subglobose, its apex truncate, constricted at the base, sides rounded, scarcely narrowed in front, surface closely punctured, covered with adpressed hairs, a narrow line down the middle of the disk nitidous, impunctate; piceous, the entire limb rufo-fuscous; at the middle of the base is a short longitudinal line formed of adpressed whitish hairs. Scutellum broadly truncate, clothed with coarse adpressed whitish pubescence. Elytra as broad at the base as the thorax, thence quickly narrowed towards the apex, the latter dehiscent; above coarsely punctured, humeral callus prominent; surface longitudinally excavated along the suture, the excavated portion commencing immediately below the basilar space; the latter plane, not perceptibly raised above the surface of the elytron; the yellow colour on the basal half of the surface soon becomes obscured, and imperceptibly loses itself in the general fuscous colour of the sides and hinder disk. Body beneath clothed with coarse, adpressed, dirty white hairs; sides of the metasternum nearly glabrous, sparingly covered with very fine, adpressed, fulvous hairs; apical border of metasternum, together with the mesosternum, each clothed with a transverse band of coarse yellowish pubescence. Hinder thighs moderately thickened. Apical segment of the abdomen impressed with a deep fovea.

Very close, both in form and colour, to *P. tomentosa*; the two species, however, present distinct points of difference. *P. Thoreyi* is larger, its head broader, the eyes larger and more prominent; the thorax is more constricted behind, and the scutellum broadly truncate at the apex; the elytra are broader at the base,

more quickly narrowed towards their apex; the shoulders are more produced. In *P. tomentosa* the scutellum is obtuse; the longitudinal depression on the back of the elytra commences just beneath the scutellum, and not below the basilar space, as in *P. Thoreyi*. In addition to the above, there are numerous other small differences.

Fam. Gallerucidæ. Subfam. Halticinæ.

Systema Batesii.

S. elongata, pallide prasina, nitida; oculis nigris; antennis pallide rufo-fuscis; thorace basi transversim sulcato: elytris tenuiter punctatis; linea suturali vittaque submarginali ante apicem abbreviatis, obscure viridibus.

Long. 3 lin.

Hab. Ega, Upper Amazons. Collected by Mr. H. W. Bates.

Head smooth, obsoletely punctate. Thorax slightly transverse, impressed in front of the base by a shallow transverse groove; disk obsoletely punctured; sides narrowly margined, straight and parallel from their base to beyond the middle, thence slightly converging to the apex. Elytra broader than the thorax, parallel, moderately convex, slightly depressed below the basilar space, more distinctly punctured than the thorax, the punctures indistinctly arranged in numerous longitudinal striæ.

GENUS NISOTRA.

Corpus oblongo-ovatum aut ovatum, convexum. *Caput* paullo exsertum; *facie* non carinata, supra insertionem antennarum transversim impressa; *epistomate* paullo incrassato; *antennis* subfiliformibus, 11-articulatis; *oculis* prominulis. *Thorax* transversus, marginibus basali et apicali utrinque longitudinaliter impressis. *Elytra* thorace paullo latiora, breviter ovata; *limbo inflexo* obliquo; distincte punctata, punctis in strias bifarias confuse dispositis. *Pedes: femoribus* posticis valde incrassatis, subtus canaliculatis; *tibiis* posticis dorso non canaliculatis, apice spina valida acuta armatis; *tarsis* ad apicem tibi-arum insertis; *unguiculis* appendiculatis. *Prosternum* subelongatum.

Type, *Nisotra gemella*, Erichs. Manilla.

In addition to the short basal thoracic impressions (common to *Podagrira* and other genera of *Halticinæ*), *Nisotra* has two others on its apical border, placed exactly opposite those at the base, and armed on their outer edges with a minute tooth, from each impression a longitudinal groove extending backwards for a greater or less distance across the disk of the thorax. The genus may also be separated from *Podagrira* by the peculiar striation of the elytra; in coloration (more or less red, with metallic-blue elytra) the majority of the species resemble many of the species of *Podagrira*.

In its geographical distribution *Nisotra* appears to be principally Eastern, the species of the genus spreading themselves

from India to Southern Australia, Mr. Wallace having sent home many novelties from the Malay archipelago: but I also possess several species from the southern portion of the African continent—thus adding another link to the evidence in favour of the former existence of land in the Indian Ocean.

Genus SEBÆTHE.

Corpus ovale, modice convexum, lateribus anguste marginatis. *Caput* ad oculos thoraci insertum, perpendiculare; *antennis* filiformibus, 11-articulatis; *oculis* ovatis, vix prominulis; *facie* inter antennis alte carinata. *Thorax* transversus, dorso non impressus, lateribus reflexo-marginatis. *Elytra* subdepressa, confuse punctata, anguste reflexo-marginata; *limbo inflexo* concavo, fere horizontali, margine exteriore deorsum paullo producto. *Pedes* modice robusti; *femoribus* posticis valde incrassatis, subtus canaliculatis; *tibiis* posticis dorso late canaliculatis, apice modice bisinuatis, spina valida acuta armatis; *tarsis* posticis apici tibiæ insertis, tibiæ dimidio paullo longioribus; *unguiculis* appendiculatis. *Prosternum* oblongo-elongatum, lateribus sinuatis.

Type, *Sebæthe badia*, Erichs. Manilla.

The ovate, less convex, and somewhat flattened upper body, the narrowly reflexed lateral border of the thorax, the narrow also reflexed outer margin of the elytra, together with the form of the apex of the hinder tibiæ, will serve to distinguish this genus from its allies.

Genus ARSIPODA, Erichs.

Corpus ovatum aut elongato-ovatum, convexum. *Caput* modice exsertum; *facie* declivi, inter oculos transversim canaliculata; *carina* lata, vix aut modice elevata; *antennis* 11-articulatis, filiformibus aut subfiliformibus. *Thorax* transversus, basi utrinque longitudinaliter impressus, plerumque inter impressiones transversim sulcatus, lateribus anguste marginatis (thoracis impressionibus interdum obsoletis). *Elytra* lævia aut rarius rugulosa, punctato-striata, striis sæpe plus minusve deletis. *Pedes* mediocres; *coxis* anticis transversis, non aut vix elevatis; *femoribus* posticis valde incrassatis, subtus canaliculatis, ♂ interdum subtus unispinosus; *tibiis* ejusdem paris curvatis, extrorsum plus minusve flexuosis, dorso planis aut canaliculatis, plerumque tricostatis, apice bilobatis, spina valida armatis; *tarsis* posticis tibiæ apici insertis; *unguiculis* appendiculatis.

Type, *Arsipoda Chrysis*, Oliv. Australia.

It will be seen from the above diagnosis that I have been obliged to modify slightly the characters of this genus as originally laid down by Erichson, in order that it may receive a number of allied species which have the strongest affinity with Erichson's type, and form conjointly a most natural generic group. I have drawn up the diagnosis of the genus from *A. Lownei*, *A. Chrysis*, and several other species in which all the characters above given are always present; in some of the other

species some one or other of these diagnostic marks are frequently absent. The greatest amount of divergence from the typical form occurs in the grooves of the thorax and the striæ of the elytra: thus in *A. bifrons*, Erichson's type (which, according to my views, is an aberrant form of the genus), the basal grooves are only represented by faint notches, and the transverse sulcation is entirely absent; the striæ of the elytra in the same species are also visible only near their extreme lateral border. In *A. nitida*, Waterhouse, the thorax is entirely free from impressions, whilst the striæ of the elytra are only to be seen on the hinder half of the disk; again, in *A. rugulosa* the striæ are entirely obsolete, the general surface of the elytra being irregularly punctured and rugulose. Between these extremes and the typical species every degree of variation exists; it will therefore be seen that any attempt to divide these insects into genera, dependent on the presence or absence of the grooves of the thorax or the striæ of the elytra, is utterly futile, the arrangement of Illiger, so useful and complete in reference to European genera, breaking down entirely when applied to exotic forms.

Tabular Arrangement of the Australian Species.

- I. *Corpus fulvum.*
 - A. Elytra distincte punctato-striata *variegata*, Waterh.
 - B. Elytra minus distincte punctato-striata, striis interdum obsoletis.
 - a. *Corpus breviter ovatum* *ovata*, Waterh.
 - b. *Corpus anguste ovatum* *attenuata**, Waterh.
- II. *Corpus metallicum aut nigrum.*
 - A. Thorax et elytra lævia, non rugulosa.
 - A. Antennæ breves, subincrassatæ *crassicornis*, Waterh.
 - B. Antennæ longiores, filiformes.
 - a. Impressiones basales thoracis obsoletæ.
 - * Thorax metallicus. *nitida*, Waterh.
 - * Thorax rufo-fulvus *fulvicollis*, n. sp.
 - b. Impressiones basales thoracis semper plus minusve distinctæ.
 - † Sulcus transversus thoracis obsoletus.
 - * *Corpus nigro-piceum* *bifrons*, Erichs.
 - * *Corpus metallicum* *femorata*, n. sp.
 - †† Sulcus transversus semper plus minusve distinctus.
 - * Thorax fulvus *bicolor*, Waterh.
 - * Thorax metallicus.
 - ‡ Sulcus curvatus faciei medio interruptus .. *consuta*, Germ.
 - ‡‡ Sulcus curvatus faciei integer.
 - § *Corpus elongato-ovatum* *Chrysis*, Oliv.
 - §§ *Corpus breviter ovatum, crassum.*
 - || Abdominis apex fulvus *MacLeayi*, n. sp.
 - ||| Abdominis apex basi concolor *Lownei*, n. sp.
 - B. Thorax et elytra rugulosa *rugulosa*, n. sp.

* Mr. Waterhouse has described the sexes of this species under two

Arsipoda fulvicollis.

A. elongato-ovata, postice paullo attenuata, convexa, pallide picea; antennis extrorsum, vertice abdomineque nigris; thorace obscure fulvo; clytris cupreo-æneis, tenuiter punctato-striatis, striis ante medium indistinctis, interspatiis distincte punctatis, pone medium convexiusculis.

Long. $2\frac{1}{2}$ lin.

Hab. Adelaide.

Face irregularly wrinkled, vertex finely but not very closely punctured; antennæ moderately robust, shorter than half the length of the body, slightly thickened towards their apex; basal four joints pale piceous, the rest black. Thorax twice as broad as long, sides narrowed and rounded from base to apex, anterior angles thickened; surface of disk very finely and rather closely punctured; impressions of thorax obsolete. Elytra subparallel in front, slightly narrowed posteriorly, their apex rounded; surface finely punctate-striate, the punctures placed irregularly on the striæ; interspaces impressed with punctures nearly equal in size to those of the striæ themselves: these render the rows on the anterior half of the disk confused and difficult to define; on the hinder disk, where the striæ are slightly sulcate and their interspaces rather convex, they are much more distinct. Under surface of body clothed with coarse griseous hairs.

Arsipoda femorata.

A. elongato-ovata, postice paullo attenuata, cupreo-ænea, nitida, subtus piceo-ænea; antennis (basi obscure fulva excepta) pedibusque nigris; femoribus fulvis; thorace crebre punctato, basi utrinque impresso, sulco transverso obsolete; clytris cupreo-violaceis, tenuissime punctatis, distincte punctato-striatis, striis postice deletis; tibiis posticis extrorsum vix curvatis.

Long. $2\frac{1}{4}$ lin.

Hab. Adelaide.

Narrowly ovate, slightly narrowed towards the apex; front flattened, slightly depressed, distinctly punctured; antennæ scarcely longer than half the body, robust, subfiliform. Thorax about twice as broad as long; sides narrowly margined, obliquely converging and slightly rounded from base to apex; anterior angles thickened, obtuse; surface closely and distinctly punctured, basal margin impressed on either side with a short, deep, slightly curved longitudinal groove. Elytra ovate, narrowed

names, *substriata* and *attenuata*: the latter being the ♂, I have retained that name for the species. The ♂, like the same sex of *Arsipoda bifrons*, has the hinder femora toothed beneath: this is probably also the case with some of the other species; but, unfortunately, most of them are known to us by single specimens only.

behind, their apex acutely rounded; above convex, impressed longitudinally within the humeral callus; whole surface very finely punctured; the usual striæ are distinct and visible along the anterior half of the suture, and on the anterior portion of the outer disk; over the remainder of the surface, they are entirely obsolete. Hinder thighs strongly thickened.

Arsipoda MacLeayi.

A. late ovata, valde convexa, crassa, cæruleo-viridis, metallica; antennis (basi obscure fulva excepta), pedibus quatuor anterioribus, tibiis tarsisque posticis picco-nigris, abdominis apice rufo-fulvo; thorace tenuiter punctato, basi utrinque profunde impresso, sulco transverso integro, medio sinuato; elytris fortiter punctato-striatis, striis usque ad apicem distinctis, ad latera et apicem versus leviter sulcatis, interspatiis subremote punctatis, planis, ad latera et ad apicem convexiusculis; tibiis posticis leviter extrorsum flexis.

Long. 2 lin.

Hab. Sydney.

Short, thick; facial ridge moderately raised and thickened; front smooth, not depressed, its lower part very obsoletely punctured; facial groove very deeply impressed, facial plates narrow, almost linear; antennæ half the length of the body, moderately robust, nearly filiform, being scarcely thickened towards their apex. Thorax more than twice as broad as long, sides obliquely converging and slightly rounded from base to apex, anterior angles obliquely truncate, incrassate; surface finely but not very closely punctured; base impressed on either side with a deep, slightly curved, longitudinal groove; transverse groove distinct, its middle sinuate and obtusely angled towards the basal margin. Elytra broader than the thorax, ovate, their apex rounded; upper surface impressed just within the humeral callus with an ill-defined curved groove, which bounds the lateral margin together with the outer half of the hinder border of the basilar space; striæ deeply punctured, sulcate on the outer border and towards the apex; interspaces distinctly punctured, plane, obsoletely convex towards the sides and apex.

Arsipoda Lownei.

A. crassa, ovata, obscure viridi-ænea, nitida; capite thoraceque cupreis, violaceo micantibus; antennis nigris, articulis 3^{to} et 4^{to} obscure fulvis; thorace tenuissime punctato, basi utrinque profunde impresso, distincte transversim sulcato; clytris regulariter punctato-striatis, striis fortiter impressis, ad latera et apicem versus sulcatis, interspatiis tenuiter punctatis, antice planis, postice et ad latera convexiusculis; tibiis posticis extrorsum vix curvatis.

Long. 2½ lin.

Hab. Sydney. Collected by Mr. Lowne.

Regularly ovate, robust; antennæ rather longer than half the body, slender, filiform, scarcely thickened at their apex. Thorax more than twice as broad as long; sides narrowly margined, very slightly rounded, and converging from base to apex, anterior angles thickened; upper surface very minutely punctured; the usual longitudinal impression on either side at the base strongly marked, transverse groove distinct. Elytra rather broader at their base than the thorax, ovate, slightly narrowed towards their apex, very convex, impressed within the humeral callus with a curved semicircular depression. Hinder thighs strongly thickened, unarmed beneath.

Arsipoda rugulosa.

A. anguste ovata, modice convexa, obscure fulva, nitida; antennis extrorsum nigris; pectore, abdomine femoribusque posticis (basi prætermissa) obscure piceis, vertice elytrisque cupreo-æneis; thorace fusco-æneo.

Long. $2\frac{1}{2}$ lin.

Hab. Melbourne.

Facial ridge very broad, scarcely raised; facial plates transverse, separated from the front by an indistinct transverse groove, vertex minutely granulose: antennæ scarcely equal to half the length of the body, slightly thickened towards their apex; four basal joints, together with the bases of the fifth and sixth, fulvous—the first four stained above with picuous. Thorax more than twice as broad as long; sides slightly rounded, converging from base to apex; anterior angles obliquely truncate, slightly reflexed; upper surface irregularly excavated on the sides, closely rugulose, impressed a short distance in front of the basal margin with a faint transverse groove, which does not extend to the lateral border. Elytra rather broader than the thorax, irregularly punctured, their whole surface covered with irregular transverse rugæ.

L.—On the *Cocoa-nut of the Seychelles Islands, or Coco-de-Mer*.

By Mr. GEORGE CLARK, of the Seychelles.*

THE *Coco-de-Mer* is undoubtedly the most remarkable plant in this colony and its dependencies, one of which is the only spot in the world in which it is indigenous. The fruit was known long before the plant which produces it, or the locality in which it is found; and various fables were invented as to its origin, and marvellous virtues were attributed to its qualities. The few known specimens of it which existed were valued at an enormous price till, in 1742, the discovery of the Seychelles archipelago made known the habitat and nature of this singular production.

* Communicated by Dr. Bond.